TEXAS PARASITIC FUNGI

New Species and Amended Descriptions

B. C. Tharp

The new species of pathogenic fungi described in this article were among the specimens of two series of collections; the first of these having been begun in the summer of 1914 and continued to the early spring of 1915, the second beginning in May, 1915, and continuing to midsummer, 1916. The first was undertaken under the direction of Prof. I. M. Lewis, of the School of Botany, University of Texas, for the purpose of obtaining material for a graduate thesis, which was intended to supplement the work of Heald and Wolf, as published in their Plant Disease Survey in Texas (Bul. 226, Bur. Pl. Ind., Jan. 1912). Beside the Austin vicinity, collections were made at several points in east and northeast Texas.

On May 1, 1915, the writer began work in plant pathology for the Texas Department of Agriculture, and the second series of collections has been made since that time, partly by himself, both alone and in company with others, and partly by members of the field force of the Department. The place and date of collection, together with name of collector, follows the description of each of the following species. Unavoidably delayed verifications kept the first series from being fully reported in the thesis above mentioned; hence its inclusion in the present paper.

Identifications were made and descriptions written by the author, verifications of those fungi of both series belonging to the order Uredinales being kindly undertaken by Professor J. C. Arthur. Fungi in the first series of collections not belonging to the order Uredinales were submitted to Mrs. Flora W. Patterson, of the Mycological Herbarium, Washington, D. C., while the writer himself visited this herbarium in September, 1916, for the purpose of verifying the new and doubtful species in the second

series. I wish here to make grateful acknowledgment, both to Professor Arthur and to Mrs. Patterson and her associates, for their assistance to me.

The total number of host-parasite combinations resulting from these collections and previously unreported for Texas is two hundred and sixty-five, including forty-eight new species and two new varieties. There were also found to be eleven collections of fungi apparently previously described but differing from their descriptions to such an extent as to make it advisable to record the points of difference. These new species and varieties, together with those to whose descriptions amendments have been offered, are the basis for the present article.

For convenience in reference the genera have been arranged in alphabetic order, instead of following the natural grouping.

Specimens from all type collections have been deposited in the Mycological Herbarium at Washington, D. C., and duplicates from such collections in the herbarium of the University of Texas; while of the collections of the second series, type duplicates have been deposited both in the above herbaria and in the Mycological Herbarium of the Texas Department of Agriculture. Wherever the amount of material has been sufficient to warrant it, the writer has also kept specimens in his private herbarium.

Ascochyta boerhaaviae sp. nov.

Spots dirty-brownish-gray, suborbicular, 2–4 mm. in diameter; pycnidia dark-brown, epiphyllous, globose depressed, immersed, finally opening to surface through a pore, 80–120 × 70–105 μ; conidiophores not in evidence; conidia hyaline, guttulate, 1-septate, 12–14 × 3.5–4 μ, apparently filling pycnidia at maturity. (Associated occasionally with *Albugo bliti,* but apparently independently pathogenic.)

On living leaves of *Boerhaavia erecta* L., Austin, Texas, Nov. 1, 1915, *B. C. Tharp.*

Cercospora acalypharum sp. nov.

Amphigenous on gray-brown, distinctly zonate spots subcircular in outline, 2–5 mm. in diameter, or by confluence much larger in area; epiphyllous conidiophores in fascicles of 4–10, light-brown, straight, abruptly truncate, continuous or occasion-

ally faintly uniseptate, 20–55 × 4.5–5 μ; hypophyllous conidiophores differ from epiphyllous in much greater length (averaging more than twice as long), in being pluriseptic, and in being fewer fascicled and more spreading; conidia hyaline, 100–235 × 3 μ, upward attenuate, abruptly truncate at base, straight or occasionally slightly curved, faintly multiseptate.

On leaves of herbarium specimen of *Acalypha ostryaefolia* Ridd., U. of T. herbarium, collected Austin, Texas, *A. M. Ferguson,* Oct. 20, 1901, identified Jan. 8, 1916.

CERCOSPORA ALTHAEINA Sacc.

Maximum length of conidia in our material 120 μ, opposed to 60 μ in original description; 12–14-septate opposed to 2–5-septate; conidiophores averaging 50–55 × 5 μ, frequently more than 100 μ long, opposed to 40 × 5 rarely 100 μ long; subgeniculate bearing scars of conidia at geniculations (geniculation not mentioned in description).

On living leaves of *Althaea rosea* Cav., Houston, Texas, July 9, 1915, *B. C. Tharp.*

Cercospora ammanniae sp. nov.

Spots minute, 1–2 mm. in diameter, circular or subcircular, dirty-grayish-brown with purplish raised margin above, rusty-brown below, sometimes apparently confluent at tips causing death of the whole tip of leaf; conidiophores amphigenous, densely fasciculate on tuberculate base, light-brown to subhyaline, spreading, 1–3-septate, strongly geniculate, rarely branched toward tips, 40–60 × 4 μ; conidia hyaline, obclavate to attenuate, septate below, guttulate above, 60–100 × 3–4 μ, rarely longer.

On living leaves of *Ammannia coccinea* Rottb., Austin, Texas, *I. M. Lewis & B. C. Tharp.*

Cercospora apiifoliae sp. nov.

Spots amphigenous, marginal or central, brown, orbicular to irregular, 1–7 mm. in diameter, surrounded by a more or less yellow border; conidiophores principally epiphyllous, densely fascicled, surmounting a subtubercular base, olivaceous, continuous, tortulose, 20–25 × 3–4 μ; conidia light-olivaceous, faintly pluriseptate-guttulate, cylindric to spindleform, 30–50 × 3 μ.

On living leaves of *Crataegus apiifolia* Michx., Texarkana, Texas, Oct. 16, 1915, *I. M. Lewis & B. C. Tharp.*

Cercospora arboriae sp. nov.

Spots mostly central, rarely at margin of leaf, dark-brown to almost black above, more dilute-brown below, angular, 1–3 mm. in diameter, margin darker; conidiophores amphigenous but principally hypophyllous, yellowish-brown, subgeniculate, 40–60 × 4 μ, in loose fascicles surmounting a tuberculate base, ascending but spreading, not produced till spots show a grayish-brown center; conidia attenuate to obclavate, subhyaline to pale-yellow, pluriseptate, 35–85 × 3–5 μ.

On living leaves of *Ampelopsis arboria* (L.) Rusby, Austin, Texas, Oct. 20, 1914, *I. M. Lewis & B. C. Tharp.*

Cercospora bidentis sp. nov.

Spots amphigenous, 5–8 mm. or more in diameter, circular or irregular, with definite raised margin above, indefinite below; hyphae epiphyllous, fascicled 3–25 in each fascicle, brown, 50–120 × 4–5 μ, subnodulose, 2-pluriseptate; conidia 45–150 × 3–4 μ, continuous, strongly attenuate upward, strongly pluriguttulate.

On living leaves of *Bidens nashii* Small, Palestine, Texas, Oct. 30, 1914, *I. M. Lewis & B. C. Tharp.*

Cercospora bliti sp. nov.

Spots dark-brown above, lighter below, very large (occasionally as much as 2 × 3–4 cm.) or by confluence blighting whole leaflets; conidiophores amphiglious, those above 20–30 × 4 μ, light-brown, continuous, 5–15 fascicled surmounting a subimmersed dark-brown tubercle about equal in height to the length of conidiophores; hypophyllous conidiophores longer than epiphyllous (30–65 μ); subgeniculate, septate, darker brown, fewer fascicled, likewise surmounting a more or less immersed tubercle; conidia pale-yellow, pluriseptate, upward attenuate, 50–120 × 3 μ.

On living leaves of *Rubus* sp. (blackberry), Brazoria, Texas, Sept. 4, 1915, *B. C. Tharp.*

Cercospora capitati sp. nov.

Spots dirty-brown, amphigenous, irregular, 1–4 mm. in diameter, without raised margin; hyphae amphigenous, loosely few-fascicled, subnodulose, brown, 3–5 septate, 130–150 × 4–5 μ; conidia hyaline, straight or curved, attenuate upward, base truncate, faintly to clearly pluriseptate, 70–220 × 3–4 μ.

On living leaves of *Croton capitatus* Michx., Conroe, Texas, Oct. 29, 1914, *I. M. Lewis & B. C. Tharp.*

Cercospora carolinensis sp. nov.

Spots irregular, amphigenous, brown, imperfectly zonate above, 5–10 mm. or more in diameter, margin slightly raised; hyphae amphigenous, densely fasciculate, short, continuous (15–30 × 4), light-brown; conidia hyaline, 30–130 × 3–4 μ, upward attenuate, 4–7-septate.

On living leaves of *Solanum carolinense* L., Palestine, Texas, Oct. 30, 1914, *I. M. Lewis & B. C. Tharp.*

Cercospora erythrinicola sp. nov.

Spots amphigenous, circular or subcircular, 5–8 mm. in diameter, grayish-brown with darker border, brighter above than below; hyphae hypophyllous, fascicled, brown, septate, subgeniculate, slightly spreading, 40–75 × 5 μ; conidia hyaline, straight or slightly curved, subattenuate, to cylindrical, subtruncate at base, pluriseptate, 45–65 × 4–5 μ.

On living leaves of *Erythrina herbacea* L., Rockdale, Texas, Oct. 31, 1914, *B. C. Tharp.*

CERCOSPORA EUPHORBIAECOLA **tragiae** var. nov.

Spots amphigenous, grayish-brown above, water-soaked beneath, 3–8 mm. in diameter, marginal or in interior of leaf; hyphae amphigenous but chiefly hypophyllous, short, 20–30 × 4 μ, continuous, densely fasciculate, light-brown; conidia upward attenuate, hyaline or rarely light-brown toward base, 1–5 septate, 40–95 × 3 μ.

On living leaves of *Tragia nepetaefolia* Cav., Austin, Texas, Oct. 6, 1914, *I. M. Lewis & B. C. Tharp.*

Cercospora ficina sp. nov.

Spots amphigenous, mottled-rusty-brown above, bright-yellow-brown below, angular, 1–5 mm. in diameter, or greater by confluence; hyphae hypophyllous, in spreading fascicles of 10–50, brown, several times septate, subgeniculate, 75–125 × 3.5–4 μ; conidia hyaline, apparently continuous, densely granular-guttulate, gradually upward attenuate, cycle-shaped or sometimes bent almost at a right angle, 100–175 × 3 μ.

On living leaves of *Ficus carica* L., Rockdale, Texas, Oct. 31, 1914, *B. C. Tharp.*

Cercospora helenii sp. nov.

Spots white, circular or irregular, grayish-brown border, 1–2 mm. in diameter; hyphae amphigenous, brown, fasciculate, straight or subgeniculate, continuous or sparsely septate, 35–60 × 3–4 μ; conidia hyaline, granular-guttulate, cylindrical, 3–5-septate, 35–50 × 3 μ.

On living leaves of *Helenium microcephalum* DC., Austin, Texas, *I. M. Lewis & B. C. Tharp.*

Cercospora hydrangeana sp. nov.

Spots amphigenous, suborbicular, zonate, light-brown with small, white centers, 5–10 mm. in diameter, or by confluence covering large areas; conidiophores amphigenous, scattered over entire spots, but more abundant below, tufted, faintly septate, straight or rarely subdenticulate, brown at base, becoming lighter in color toward apex, 100–180 × 4.5–5 μ; conidia hyaline, straight to slightly curved, truncate at base, upward attenuate, continuous or faintly septate, 70–165 × 3–3.5 μ.

On living leaves of cultivated *Hydrangea,* Houston, Texas, June 24, 1915, *B. C. Tharp.*

CERCOSPORA ILICIS Maublanc

Spots amphigenous, marginal or central, sometimes confluent, circular to subcircular, white, surrounded by a zone of black shading through yellowish-brown to green, or sometimes without yellowish-brown zone, white center 1–3 or 4 mm. in diameter; conidiophores amphigenous, those above very short (20–40 × 4 μ), continuous, yellowish-brown, subdenticulate, surmounting a parenchymatous and more or less cylindric brown base 20–40 μ high by 50–55 μ across, those below longer, 60–105 × 4 μ, obscurely few septate, flexuous, spreading, denticulate, surmounting a very slightly tubercular base; conidia fili-spindleform, or upward attenuate with a truncate base, at maturity multiseptate, 75–130 × 3 μ. (Described by Maublanc and Rangel in a bulletin of the state of Sao Paulo, Brazil; title *Algunos fungos do Brazil, novos ou mal conhecidos* (1); date not given.)

On living leaves of *Ilex opaca* L., Texarkana, Texas, Oct. 16, 1915, *I. M. Lewis & B. C. Tharp.*

Cercospora marrubii sp. nov.

Spots minute, circular to subcircular, white or grayish, amphigenous, without colored or raised margin; hyphae amphigenous but principally epiphyllous, brown to olivaceous, subgeniculate, pluriseptate, 100–224 × 5 μ, conidia hyaline, curved, attenuate pluriseptate, 50–150 × 3–4 μ.

On living leaves of *Marrubium vulgare* L., Austin, Texas, *I. M. Lewis & B. C. Tharp.*

Cercospora mirabilis sp. nov.

Amphigenous on circular to subcircular spots 2–5 mm. in diameter, brown and gray zonated with gray centers, brighter colored above than below; epiphyllous conidiophores in fascicles of 12–20, light-brown, subnodulose, 0–2-septate, 50–80 × 4 μ, arising from a slightly tubercular base; hypophyllous conidiophores differ from epiphyllous in being longer (averaging 100 × 4 μ) fewer fascicled (4–10), and in having a less tubercular base; conidia hyaline, faintly pluriseptate, straight to slightly curved, upward attenuate, 80–140 × 3 μ.

On living leaves of *Mirabilis jalapa* L., Austin, Texas, Oct. 30, 1915, *B. C. Tharp.*

Cercospora modiolae sp. nov.

Spots amphigenous, circular to subcircular, white centered with dark-grayish-brown, more or less angular borders shading through yellow into green, center 1–2 mm. in diameter; hyphae amphigenous, brown, geniculate, 70–110 × 5 μ, fasciculate, fascicles loose spreading; conidia straight to cycle-shaped, hyaline, usually faintly pluriseptate but occasionally markedly so, attenuate 50–140 × 5–6 μ.

On living leaves of *Modiola carolinia* G. Don, Austin, Texas, Fall of 1914, *I. M. Lewis & B. C. Tharp.*

Cercospora nelumbonis sp. nov.

Spots few to several hundred per leaf, amphigenous, grayish-brown above with definite dark-brown border, circular to irregular, 2–7 or 8 mm. in diameter, more or less indefinite and dirty-brown below; hyphae epiphyllous, fasciculate 5–25 per fascicle, brown, 1–4-septate, subnodulose, 30–70 × 4–5 μ; conidia 25–95 × 3–4 μ, hyaline, 1–3-septate, upward attenuate.

On living leaves of *Nelumbo lutea* (Willd.) Pers., Palestine, Texas, Oct. 30, 1914, *I. M. Lewis & B. C. Tharp.*

Corcospora nigri sp. nov.

Spots amphigenous, indefinitely margined, 3–8 mm. in diameter or by confluence covering leaf, dirty-brown above, water-soaked, becoming brown beneath; hyphae amphigenous; ephiphyllous hyphae densely (30–100) fasciculate, fascicles comparatively scattered, light-brown, septate, subgeniculate, 30–50 × 5 μ, somewhat spreading; hypophyllous fascicles more densely clustered, hyphae rarely less than 50 μ long, usually longer, geniculate, septate, almost hyaline above to brown at base, spreading; conidia yellowish-gray to hyaline, cylindric or upward attenuate, 1–12-septate, 35–95 × 3–4 μ, profuse on both leaf surfaces.

On living leaves of *Solanum nigrum* L., Palestine, Texas, Oct. 30, 1914, *I. M. Lewis & B. C. Tharp.*

Cercospora nyssae sp. nov.

Spots amphigenous, circular to subcircular, 3–8 mm. in diameter, brown with a gray, punctiform center and darker brown slightly raised margin; hyphae amphigenous, short, dark-brown, continuous to once or twice septate, nodulose, spreading, 40–50 × 4–5 μ; conidia obclavate, olivaceous, 3–12-septate, 35–100 × 5–6 μ.

On living leaves of *Nyssa sylvatica* Marsh., Palestine, Texas, Oct. 30, 1914, *I. M. Lewis & B. C. Tharp.*

CERCOSPORA PERSONATA (B. & C.) E. & E.

The following quotation is taken from the Journal of Mycology 1:63–64.

"*Cercospora personata* (B. & C.), (*Cladosporium personatum* B. & C. Grev., III, p. 106).

"Forming small brown, orbicular spots (2–4 mm.) on the lower surface of the leaves. Hyphae densely tufted, short, brown, continuous. Conidia mostly clavate, pale brown, about 3-septate, 30–50 × 5–6 microns. Originates beneath the epidermis.

"On leaves of *Arachis hypogaea,* Carolina and Alabama (Ravenel). According to Berkeley (l. c.), 'a variety occurs

on *Cassia occidentalis* which, amongst the usual threads has others which are slender, articulated, with longer oblong 1-septate spores.'"

Our material shows conidiophores decidedly amphigenous, but much more copious below, and with attenuate, denticulate, subtortulose apices; conidia in general obclavate to cylindrical, but typically with irregular undulations and thickenings which give them quite a unique appearance. Mature conidia measure 60–130 × 4–5 μ.

It also lacks the "slender articulated threads" and the "1-septate spores" which are typical of var. *Cassia occidentalis*. General macroscopic characters are so similar, however, as to make it very likely *C. personata* (B. & C.) E. & E.

On living leaves of *Cassia occidentalis* L., Palestine, Texas, Oct. 30, 1915, *I. M. Lewis & B. C. Tharp*.

Cercospora piaropi sp. nov.

Spots ovate, grayish-tan centered with purplish-black borders somewhat raised above, brighter above than below, 1.5–3 × 3–5 mm. in diameter, or larger by confluence; conidiophores epiphyllous, fasciculate but very few in each fascicle, sparse, bright brown with yellowish apices, denticulate, sometimes branched, pluriseptate, 100–125 × 3.5–4.5 μ; conidia hyaline, truncate at base, upward attenuate, pluriseptate at maturity, 80–140 × 3 μ.

On living leaves of *Piaropus crassipes* (Mart.) Britton, Palestine, Texas, Oct. 30, 1914, *I. M. Lewis & B. C. Tharp*.

Cercospora populicola sp. nov.

Spots subcircular, 5–10 mm. in diameter, amphigenous, gray-brown, zonate, due to concentric zones of conidiophores; conidiophores amphigenous, concentrically zonate, brown, multiseptate, fasciculate, straight to rather subgeniculate, rarely branched, 80–114 × 5 μ; spores hyaline, slightly attenuate, multi-septate or guttulate, truncate at base, curved, 50–150 × 2–3 μ.

On living leaves of *Populus deltoides* Marsh. Associated with an undetermined species of *Volutella*. Rockdale, Texas, Oct. 31, 1914, *B. C. Tharp*.

Cercospora pulcherrimae sp. nov.

Spots amphigenous, suborbicular, centers grayish, 1–3 mm. in diameter, surrounded by a dark-brown border in turn surrounded by a borad more or less chlorotic zone which shades gradually into normal green, much brighter above than below; conidiophores amphigenous, those on upper surface densely fasciculate and clustered at centers of spots giving them a sooty appearance, brown, septate, slightly flexuous, subdenticulate, measuring up to $150 \times 4–5\,\mu$; those on lower surface few (2–8) in fascicle, and spread evenly over surface of spot, measuring up to $270 \times 4–5\,\mu$, in other respects similar to those on upper surface; conidia hyaline, multiseptate, truncate at base, attenuate, slightly curved, measuring up to $270 \times 3–4\,\mu$ (averaging $175 \times 3.5\,\mu$).

On living leaves of *Euphorbia pulcherrima* Willd., Austin, Texas, Jan. 29, 1916, *McAllister & B. C. Tharp.*

CERCOSPORA PULCHERRIMAE **minima** var. nov.

Spots very similar, except smaller, to spots described above. Microscopically it has the following differences: Epiphyllous conidiophores short ($25–45\,\mu$) rigid, truncate, hypophyllous conidiophores not exceeding $100\,\mu$ in length, denticulate many (30–40) in fascicle, semirigid, truncate; conidia never more than $170\,\mu$ long.

On living leaves of *Euphorbia pulcherrima* Willd., Victoria, Texas, Oct. 18, 1915, *H. C. Millender.*

Cercospora regalis sp. nov.

Spots amphigenous, suborbicular, brown, 1–2 cm. in diameter; conidiophores principally epiphyllous, simple, straight or curved, multiseptate, brown, paling toward the tips, reaching a maximum of $460\,\mu$ long $\times$ $5\,\mu$ in diameter; conidia hyaline, multiseptate, curved or straight, attenuate, reaching a maximum of $280 \times 4\,\mu$.

On living leaves of *Passiflora* sp., Mission, Texas, Nov. 5, 1915, *B. C. Tharp.*

Cercospora rosigena sp. nov.

Spots irregularly orbicular, 4–14 mm. (averaging 5–7 mm.) in diameter, uniformly brown, brighter above than below, margin slightly reddish above; surrounding tissue sometimes yellowish but usually not noticeably so; conidiophores amphigenous, brown, in tufts of 2–12, continuous, or occasionally 1-septate, sharply

denticulate toward apices, somewhat attenuate, 50–90 × 4 μ (averaging 50–70 × 4 μ); conidia obclavate, olivaceous, pluriseptate, sometimes slightly curved, 45–95 × 4–5 μ (typically 60–75 × 5 μ). (Has almost no points of similarity to *C. rosicola* Pass.)

On living leaves of *Rosa* sp., Gonzales, Texas, Sept. 29, 1916, *B. C. Tharp.*

Cercospora salviicola sp. nov.

Amphigeous on whitish centered subcircular to angular brown spots, 1–5 mm. in diameter, surrounded by a purplish zone which fades into normal green, brighter above than below; conidiophores amphigenous, tufted, 5–20 in each fascicle, brown at base shading to subhyaline at apex, or brown throughout, sub- to strongly geniculate, 1–2-septate, 30–85 × 4 μ, averaging longer below than above; conidia hyaline, pluriseptate, straight or curved, upward attenuate, abruptly truncate at base, 60–200 × 3–5 μ.

On living leaves of *Salvia farinacea* L., Austin, Texas, Oct. 27–Nov. 27, 1915, *B. C. Tharp.*

Cercospora texensis sp. nov.

Spots amphigenous, circular to subcircular, 1–6 mm. in diameter, rather bright yellow-brown, sometimes zonate above, duller brown below, surrounded by a yellow margin shading into normal green; conidiophores amphigenous, fasciculate surmounting a tubercular base, brown at base, shading through lighter brown into yellow, to subhyaline at tip, straight or slightly flexuous bearing conidial scars, apex truncate; epiphyllous conidiophores shorter (50–90 × 5 μ) and in denser fascicles (10–25) than the hypophyllous (2–6 in a fascicle and 100–140 × 5 μ); conidia hyaline, attenuate with truncate base, or sometimes subobclavate, multi-septate, more or less curved, at maturity measuring sometimes 200 × 5 μ.

On living leaves of *Lupinus texensis* Hook., Austin, Texas, Feb. 22, 1916; also May 19, 1916, *B. C. Tharp.*

Cercospora torae sp. nov.

Spots appearing first as dirty-yellow circular blotches 5–8 mm. in diameter, or by confluence covering entire leaflet, later having centers of smoky-brown with advancing margins of dirty-yellow; conidiophores amphigenous, fasciculate, dense on both surfaces

covering both yellow margins and brown centers, smoky-brown, pluriseptate, subtortulose, often decidedly branched, 40–90 × 5 μ; conidia yellow, obclavate to spindle form, pluriseptate strongly vacuolate 40–75 × 4.5–5 μ (usually 50–60 × 4.5–5 μ). (Clearly different from *C. nigricans* Cke. and *Ramularis cassiaecola* (E. & E.) H. & W. with the latter of which it was compared.

On living leaves of *Cassia tora* L., Palestine, Texas, Oct. 30, 1914, *I. M. Lewis & B. C. Tharp.*

Colletotrichum cinnamomi sp. nov.

Spots amphigenous, much longer than broad and running lengthways of the leaves, usually limited by main veinlets, black at first, later becoming ashen-gray with black borders above, uniformly grayish-brown below; 1–1.2 × 2–6 cm.; acervuli hypophyllous, 90–130 μ in diameter, setae abundant, dark-brown, septate, 40–60 × 3–4 μ; conidiophores hyaline, ovate 10–14 × 3–4 μ; conidia hyaline, linear-ovate, 12–16 × 3–4 μ.

On living leaves of *Cinnamomum zeylanicum* Nees, Alvin, Texas, Sept. 13, 1915, *B. C. Tharp.*

Coniothyrium rhois sp. nov.

Spots deep-brown, angular to orbicular, central or marginal, 2–10 mm. in diameter; pycnidia appearing only on older spots, hypophyllous, immersed, at length erumpent, brown, spherical to depressed globose, 70–165 μ in diameter; ostiole large (sometimes 50 μ in diameter); conidiophores obsolete; conidia at first hyaline, at maturity deep-brown, ovoid, 5–10 × 3–6 μ.

On living leaves of *Rhus virens* Lindl., Austin, Texas, Feb. 15, 1916, *B. C. Tharp.*

Coniothyrium ulmi sp. nov.

Spots amphigenous, whitish, angular, 0.5–3 mm. in diameter, profuse over entire leaf surface; pycnidia epiphyllous, subepidermal in origin, at length erumpent, black around ostiole, shading into brown below, globose, 90–125 μ in diameter; ostiole without papillae; conidiophores obsolete; conidia brown, ovate, 2–2.5 × 4–6 μ.

On living leaves of *Ulmus campestris* Smith, Bonham, Texas, Aug. 21, 1916. (Submitted for diagnosis by a nurseryman.)

Exosporium liquidambaris sp. nov.

Spots orbicular, 4–5 mm. in diameter, brown with more or less ashen centers and raised margins, contiguous tissue more or less chlorotic, often occurring at leaf edges where they are half orbicular in outline; sporodochia amphigenous, dark-brown, 20–35 μ in diameter; conidiophores very short (6–10 $\times$ 3.5 μ), continuous, compact in sporodochium; conidia pale-yellow, septate, curved, cylindric, rounded at ends, faintly pluriseptate, 30–90 $\times$ 3 μ.

On living leaves of *Liquidambar styraciflua* L., Houston, Texas, June 28, 1915, *B. C. Tharp.*

Exosporium platanorum sp. nov.

Spots few and fairly large (3–4 mm. in diameter), or many and very small (1 mm. or less), brown above, entirely covered with a black apparently waxy substance composed of sporodochia and conidia below; sporodochia dark brown at base with lighter upper portion, hypophyllous (rarely epiphyllous), 25–60 μ in diameter; conidiophores light brown, occasionally obscurely septate, subtortulose, very short (10 $\times$ 4–5 μ); conidia brown to olivaceous, curved, slightly attenuate at both ends, 3–5-septate, 34–70 $\times$ 4–5 μ.

On living leaves of *Platanus occidentalis* L., Austin, Texas, Oct. 23, 1915, *I. M. Lewis & B. C. Tharp.*

Exosporium phoradendri sp. nov.

Spots circular, 6–8 mm., showing two (usually) concentric shades of brown, margins slightly raised and yellow, alike on both leaf surfaces; acervuli amphigenous, dark-brown, 80–140 μ in diameter, formed below epidermis and rupturing it; spores yellowish, multiseptate-guttulate, 45–65 $\times$ 2 μ.

On living leaves of *Phoradendron flavescens* (Pursh) Nutt., Austin, Texas, Feb. 17, 1915, *I. M. Lewis.*

ISARIOPSIS CLAVISPORA (B. & C.) Sacc.

Our material showed conidia 30–56 $\times$ 6–8 μ, 7–8 septate, non-guttulate; opposed to 44 $\times$ 4–5 μ, 3–4-septate, guttulate, in description: Sylloge 4: 631.

On living leaves of *Vitis* sp., Jacksonville, Texas, Oct. 15, 1915, *I. M. Lewis & B. C. Tharp.*

Napicladium prosopodium sp. nov.

Spots amphigenous, circular to orbicular, 1–2 mm. in diameter, light brown except where dense covering of conidiophores and conidia gives a dark-brown cast; conidiophores amphigenous, appearing first on upper surface, fasciculate, arising from a tubercular base which extends into subepidermal tissue, very strongly geniculate, often with very short branches at geniculations, septate, slightly spreading, typically light-brown but varying somewhat in shade of color, 20–40 × 8–10 μ; conidia light-brown when young, darker with age, spindle form, 3–8-septate, 50–80 × 12–15 μ, basal and apical cells of mature conidia noticeably lighter in color than other cells, apical cell nipple-shaped at terminal end, basal cell truncate-conic.

On living leaves of *Prosopis glandulosa* Torr., Austin, Texas, Nov. 10, 1914, *I. M. Lewis & B. C. Tharp.* Associated occasionally with *Cercospora prosopodis* H. & W., but frequently occurring alone, at which time only it produces the characteristic spots described above. The brown spots produced by *C. prosopodis* are much larger, and much lighter and duller in color than those of *N. prosopodium* and in other respects have nothing of the appearance of the spots produced by *N. prosopodium.*

Phleospora pteleae sp. nov.

Spots amphigenous usually having a punctiform, white center surrounded by a zone of dark-brown dead tissue, in turn surrounded by a conspicuous yellow zone shading into normal green, brown portions irregularly circular, 0.5–2 mm. across; pycnidia hypophyllous, 45–60 μ in diameter; spores curved, hyaline, 30–50 × 3–4 μ, 3–7-septate.

On living leaves of *Ptelea trifoliata* L., Austin, Texas, Oct. 23, 1915, *B. C. Tharp.*

Phyllachora texana sp. nov.

Stromata variable in size from minutely punctiform to more than 1 mm. in diameter, circular in outline, or by confluence irregularly lobed, typically extending through leaf and showing on both surfaces; perithecia reduced to ascigerous loculae (one or more contained in each stroma), opening through ostiola on one leaf surface only, or on both surfaces; asci paraphysate, clavate, 50–80 × 10–14 μ; spores typically 8 in each ascus, uni-

or subbiseriate, ovate, with both ends subacute, hyaline, unicellular, 12–19 × 4–5.5 μ.

On living leaves of *Acacia wrightii* Benth., Cotulla, Texas, Feb. 21, 1916, *B. C. Tharp*. Differs from *P. acaciae* P. Henn (Sylloge 11: 368) in size of stromata, size and shape of asci, and in size of spores, though the latter point of difference is slight. The description in question, however, seems to me to be wholly too short to be satisfactory.

PHYLLOSTICTA CARYAE E. & E.

Spots brown, irregular, indefinite, shading into green, 1–5 cm. in diameter; pycnidia amphigenous, brownish black, lens-shaped, 80–140 μ in diameter; ostiola prominent, spores 7 × 3 μ, hyaline. uniguttulate.

On living leaves of *Hicoria* sp., Palestine, Texas, Oct. 30, 1914, *I. M. Lewis & B. C. Tharp*.

Phyllosticta cephalanthi sp. nov.

Spots small, 1–2 mm. in diameter, orbicular to subcircular, brown above with reddish borders, at length grayish centered, uniformly dull-brown beneath; pycnidia epiphyllous, few, produced only on gray centers of older spots, spherical, immersed, apex protruding, upper ¼ almost black, lower ¾ light-brown, 60–140 μ; conidia hyaline, strongly pluri-guttulate, 5–8 × 3–4 μ.

On living leaves of *Cephalanthus occidentalis* L., Conroe, Texas, Oct. 30, 1914, *I. M. Lewis & B. C. Tharp*. (Associated occasionally with an undetermined species of *Cercospora* (?) and with *Pestalozzia funerea* Desm.)

Phyllosticta euonymi sp. nov.

Spots marginal on leaf, whitish, indefinite in outline, fraying edge of leaves but with a purplish zone toward inner part of leaf, 3–4 × 5–10 mm. in diameter; pycnidia epiphyllous, without ostiola or ostiola minute, black, spherical, 100–150 μ in diameter; spores hyaline, elliptical, guttulate, 7–8 × 10–12 μ.

On living leaves of *Euonymus atropurpureus* Jacq., Rockdale, Texas, Oct. 31, 1914. Coll. B. C. T., Oct. 31, 1914, *B. C. Tharp*.

Phyllosticta verbenicola sp. nov.

Spots marginal or central, gray with purplish border, 2–6 mm. in diameter; pycnidia amphigenous, immersed, ostiole at length protruding, pyriform to spherical, 35–40 μ in diameter, black; spores ovate, 2.5 $\times$ 6 μ, hyaline, guttulate.

On living leaves of *Verbena bipinnatifida* Nutt., Austin, Texas, Fall of 1914, *I. M. Lewis & B. C. Tharp.*

Ramularia acalyphae sp. nov.

Amphigenous on spots which first appear on upper surface as yellowish indefinite areas 2–3 mm. in diameter, lower surface appearing faintly brownish and frosted as with powdery mildew, later the central portion becomes dead and is then surrounded by a circle of yellowish tissue, ultimate diameter of spots (in this material) being 4–5 mm.; conidiophores appearing first on under side, later also on upper, but always more copious on lower, continuous, guttulate, yellowish (almost hyaline), denticulate above, single or fasciculate, 25–50 $\times$ 4 μ; conidia pluriseptate-guttulate, yellow-hyaline, cylindric to spindle-form, 20–50 $\times$ 3–4 μ.

On living leaves of *Acalypha lindheimeri* Muell. Arg., San Antonio, Texas, Sept. 28, 1915, *B. C. Tharp.*

Ramularia salviicola sp. nov.

Spots amphigenous, irregular, tending toward orbicular, brown, inconspicuously zonate below, 1–10 mm. in diameter; conidiophores principally hypophyllous, rather sparse, tufted, few in each tuft, hyaline to light-yellow, continuous, 20–30 μ long, obclavate, 4 μ thick at base, 2 μ at apex, apex truncate, with an apical pore; conidia spindleform, septate, hyaline to light-yellow, 30–120 $\times$ 4–5 μ, averaging about 35–40 $\times$ 4–5 μ.

On living leaves of *Salvia farinacea* Benth., Austin, Texas, Oct. 23, 1915, *B. C. Tharp.*

Ramularia saururi (E. & E.)

Described in Journal of Mycology 3: 14 as *Cercospora saururi* E. & E., but the conidia being unquestionably catenulate in our material places the species in the genus *Ramularia.*

On living leaves of *Saururus cernuus* L., Jacksonville, Texas, Oct. 15, 1915, *I. M. Lewis & B. C. Tharp.*

SEPTORIA AMBROSIAECOLA Speg.

Spots white above, light-tan below, bordered by a narrow margin of tan-brown, 0.5–2 mm. in diameter, angular to suborbicular; pycnidia epiphyllous, immersed, 1–few on each spot, spherical to depressed globose, or occasionally pseudo-confluent and lobed, 95–180 μ in diameter, opening by an irregular cleft; conidia hyaline, undulate, 40–60 $\times$ 1.5–2 μ.

On living leaves of *Ambrosia aptera* DC., Austin, Texas, June 17, 1916, *McAllister & B. C. Tharp*. Differs from description (Sylloge 22: 1108) principally in the following points as there stated: pycnidia 90–100 μ in diameter, sub-lenticular; conidia 50–100 $\times$ 1.5–2 μ.

SEPTORIA ANEMONES Desm.

Spots usually marginal, suborbicular, 3–6 mm. or more in diameter, almost uniformly tan above except where pycnidia give centers a mottled black and tan appearance, sometimes surrounded by reddish-purple borders; tan below with dirty-blackish centers; pycnidia amphigenous but more plentiful above, where they are densely gregarious, immersed in host tissue, spherical, black, membranous, 55–100 μ in diameter, ostiole rarely forming a protrusion; conidia straight or slightly curved, guttulate, 15–40 $\times$ 1.5 μ.

On living leaves of *Anemone caroliniana* Walt., Austin, Texas, March 5, 1916, *B. C. Tharp*. Differs from *S. anemones* Desm.—so far as his description goes—in pycnidia of our material being amphigenous, and in size of sporulae in his description being only 20–22 $\times$ 1–1.5 μ.

Septoria angularis sp. nov.

Spots angular, bounded by veinlets in early stages, but later by confluence covering large areas, brown, changing abruptly into normal green at margins; pycnidia epiphyllous, light-brown, scattered, pyriform, 75–80 $\times$ 100–120 μ; immersed in tissues but erumpent through a black-necked ostiole; conidia usually curved, hyaline-yellow, guttulate, 35–50 $\times$ 3 μ.

On living leaves of *Aster drummondii* Lindl., Austin, Texas, Jan. 15, 1916, *B. C. Tharp*. Differs from *S. astericola* E. & E., *S. atropurpurea* Pk., and *S. punicei* Pk. in both gross and microscopic characters.

Septoria antirrhinorum sp. nov.

Spots 1–2.5 mm. in diameter, usually circular, sometimes irregular, light-tan above and below, margins slightly raised; pycnidia black, usually epiphyllous but sometimes hypophyllous, gregarious at centers of older spots where they are clearly visible to the naked eye, subimmersed, depressed globose, 60–120 μ in diameter; conidia hyaline, slightly curved, aseptate, 20–30 $\times$ 1.5 μ.

On living leaves of *Antirrhinum antirrhiniflorum* (Poir.) Small, Austin, Texas, Oct. 10, 1915, *B. C. Tharp.*

Septoria argemones sp. nov.

Spots amphigenous, circular, almost black, 3–8 mm. in diameter; pycnidia epiphyllous, scattered, immersed, black, spherical to subovate, 60–80 μ; conidia hyaline, curved, continuous, 18–23 $\times$ 1.5 μ.

On living leaves of *Argemone platyceras* Link & Otto, Milano, Texas, June 10, 1916, *B. C. Tharp.* Causes a definite and often serious leaf-spot, resulting in partial defoliation.

Septoria asterina sp. nov.

Spots purplish-black, at length with grayish-brown centers above, rusty-brown below, 1–5 mm. or by confluence covering the whole leaf; pycnidia pyriform, 130–200 $\times$ 110–175 μ extending through leaf, bases hypophyllous ostiola epiphyllous, spores filiform, undulate, faintly pluriseptate, 100–120 $\times$ 2.5 μ.

On living leaves of *Aster drummondii* Lindl., Austin, Texas, Fall of 1914, *I. M. Lewis & B. C. Tharp.*

SEPTORIA CERCOSPOROIDES Trail.

Spots at first show as mottled brown splotches 0.5–1 cm. or more in diameter, brighter above than below, at length uniformly brownish-black on both surfaces, but much more noticeable above, surrounded by a more or less chlorotic zone, or by confluence killing whole leaves; pycnidia amphigenous, scattered thickly over entire surface of spots, spherical, membranous, very light brown, 140–230 μ in diameter; conidia hyaline, pluriseptate-guttulate, cylindric to obclavate, 60–80 $\times$ 3 μ. Description in Grev. **15**: 109 gives pycnidia gregarious; elipsoid, 90 $\times$ 70 μ; sporules 50–60 $\times$ 2 μ.

On living leaves of large cultivated *Chrysanthemum,* Denison, Texas, Nov. 15, 1915, *B. C. Tharp.*

Septoria hicoriae sp. nov.

Spots amphigenous, irregular to subcircular, 3–10 mm. in diameter, grayish-brown with darker brown border above, sooty-brown below; pycnidia immersed before maturity, at maturity rupturing epidermis, dark-brown, spherical or at maturity twice as wide as deep, 50–125 μ in diameter, ostiola widely gaping in mature pycnidia; spores filiform, hyaline, guttulate or septate-guttulate, curved, 35–50 $\times$ 2 μ.

On living leaves of *Hicoria* sp. undetermined, and upon *H. cordiformis* Britton, Conroe and Palestine, Texas, *I. M. Lewis & B. C. Tharp.*

SEPTORIA LEPIDIICOLA E. & M.

Spots 1–6 mm. or by confluence much larger; pycnidia epiphyllous, more or less concentrically arranged, 65–140 μ in diameter.

Description of E. & M. (Sylloge III: 519 and Journal of Mycology, III: 63) very short; gives size of spots as $\frac{3}{4}$ mm. in diameter; pycnidia aggregated, 74 μ in diameter, not stating whether epiphyllous or not.

On living leaves of *Lepidium apetalum* Willd., Austin, Texas, May 22, 1916, *B. C. Tharp.*

Septoria urticaria sp. nov.

Spots amphigenous, dirty-grayish-brown with punctiform whitish centers and more or less purplish margins above, uniformly dirty-grayish-brown and less conspicuous below, scattered over entire leaf surface, in extreme cases causing intervening tissue to become chlorotic and leaves to die and fall; pycnidia amphigenous, but principally hypophyllous, uniformly dull-brown, semi-immersed, globose, 50-125 μ in diameter, ostiola wide; conidia hyaline, continuous, curved, cylindric, 50–70 $\times$ 2 μ.

On living leaves of *Urtica chamaedryoides* Pursh, Austin, Texas, Feb. 22, 1916, *B. C. Tharp.*

Septoria wistariae sp. nov.

Spots in form of blotches 2–6 mm. in diameter, or sometimes confluent, yellowish-brown above and below, with punctiform black papules marking location of pycnidia above; pycnidia epiphyllous, immersed, extending through palisade parenchyma, spherical, 90–110 μ in diameter, dark-brown; conidia hyaline, slightly curved, septate, 45–65 $\times$ 2 μ.

On living leaves of *Wistaria chinensis* DC., Algoa, Texas, June 25, 1915, *H. C. Millender.*

UNCINULA PROSOPODIS Speg. Mus. Nac. Buenos Aires 324. 1909.

Our material differs from the description cited principally in the following points; the perithecia are subglobose to rounded-lenticular, 180–205 μ in diameter, averaging 200 μ; appendages are approximately three-fourths as long as diameter of perithecia (140–165 $\times$ 4–5 μ); asci are numerous (18–40) and are 47–70 $\times$ 23–30 μ (averaging 60 $\times$ 25) and normally contain two, rarely three, spores each; spores are ovate 23–26 $\times$ 12–15 μ, and show no traces of guttulae. (Our material seems a little young, however, as evidenced by the contents of the asci not having all been absorbed by the spores.)

On living leaves of *Prosopis glandulosa* Torr., Austin, Texas, Nov. 20, 1915, *I. M. Lewis & B. C. Tharp.*

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